

REMARKS

In the Amendment, the Title of the invention has been amended to read:
-- System For Detecting and Storing Digital Pictures --.

Corrected drawings in compliance with 37 CFR 1.121(d) accompany this Response. Specifically, the reference No. 42 has been added to FIG. 1.

A certified copy of the German Patent Application 199 60 888.1 filed December 17, 1999, conventional priority from which is claimed by the present application, accompanies this Response.

Receipt of the previously submitted Information Disclosure Statement including all references cited thereon has been acknowledged by the Examiner. It has been noted by the Applicants that the prior art references submitted in the Information Disclosure Statement have been considered by the Examiner with the exception of German Patent Document 43319653/95. A translation of this German Patent Document is provided in the Supplemental Information Disclosure Statement which accompanies this Response. Proper consideration of the German Patent Document 43319653/95 by the Examiner is respectfully requested by the Applicants.

In the outstanding Office Action, claims 1, 3-5,7-9, 11,12 and 14 have been rejected under 35 USC 102(b) as being anticipated by U.S. Patent 5, 420, 635 to Konishi (the Konishi reference hereinafter). Claim 2 has been rejected under 35 USC 103(a) as being obvious over the Konishi reference in view of U.S. Patents 6,204,881 to Ikeda (the Ikeda reference hereinafter). Claims 6, 10 and 13 have been rejected under 35USC 103 (a) as being obvious over Konishi reference in view of R.C. Gonzales "Digital Image Processing." Applicants respectfully disagree with the Examiner's rejection discussed hereinabove and respectfully consider that the invention as disclosed by the amended claims submitted in the Response is patentable over the citations provided by the Examiner.

The Konishi and Ikeda references cited by the Examiner address the problem that the dynamic range of the CCD-detector is substantially small to detect both bright and dark areas of the photographed scene. Thus, either the detector elements exposed to bright pixels are driven into saturation or detector elements exposed to dark pixels are not clearly visible. Therefore, both patents cited by the Examiner suggest making two exposures, one exposure, for example, with the long duration of the exposure time and another exposure having the short duration of the exposure time. In the picture resulted from the first exposure, the dark areas are clearly visible. In the picture obtained by the second exposure, the

bright areas are clearly visible without saturation. As suggested by the prior art, the two pictures are then combined.

The present invention addresses the problem which is quite different from that addressed by the prior art. The invention uses a camera detector having a sufficiently large dynamic range of, for example, 10 pixels. This detector correctly detects both dark and bright areas of the object scene. Therefore, if teaching of the Konishi and Ikeda references cited by the Examiner is correctly applied to the present invention, there would be no need for taking two separate pictures, i.e. for “dark” and “bright” pictures.

The problem addressed by the present invention relates to image display and/or image processing. The image displayed by a monitor has a dynamic range of fewer bits than the detector. The same is true for conventional image processing computers. This lower dynamic range is, for example, 8 bits. Therefore, though the image is detected correctly by the CCD-detector of the camera, both the display and the signal processing (for example, the reading of a license plate of a monitored car) would be insufficient. If the eight most significant digits of the detector signals were read and displayed or processed, the dark parts of the object scene (for example, the relatively dark interior of the passenger compartment of a car as viewed through the windscreen) would provide

substantially only zeros. On the other hand, if the eight least significant digits were used, the more significant digits would all be cut off and the bright pixels would be displayed by an 8-digit number.

Thus, even with a high dynamic range image detector, there would normally be problems with the “electronic” picture. The invention deals with these problems, which, in the opinion of the applicants, have not been addressed by the cited prior art references.

To overcome these problems, the invention, according to the original claim 1, provides signal processing means for generating from said first digital picture data, i.e. from the picture data provided by the image detector means, second and third (dark and bright) picture data. This means: there is originally one set of first picture data. From this original set of first picture data, second and third sets of second picture data are generated. This important feature of the invention has not been disclosed by the cited references. There, two “first” sets of picture data are originally generated by the two consecutive exposures. These two sets are processed individually and later combined. In the invention, there are no second and third “bright” and “dark” sets of picture data generated from any of the first sets of picture data.

The above discussed features of the invention have been positively recited by the amended version of independent claim 1 submitted in the Response. In the opinion of the applicant, the prior art patents do not disclose the following feature recited on the amended claim 1 “image detector means for resolving an image into pixels and for generating for each pixel first digital picture data indicative of the brightness of said image at said pixel, said image detector means having a dynamic range extending over a first number of digits.” Furthermore, the prior art currently of record on the application does not teach another important feature recited in claim 1 as follows: “reading from said image detector means a second number of relatively low significance digits as second digital picture data, and a third number of relatively high significance digits as third digital picture data, said second and third numbers being smaller than said first number.”

The above has clearly demonstrated that the cited prior art references are not interested in resolving the technical problems addressed by the present invention. Furthermore, in the opinion of the Applicants, the prior art is adapted to resolve different problems compared to that addressed by the invention.

In view of the above, a conclusion is inescapable that the claims of record in general and the amended version of claim 1 specifically is patentable in light of the references cited by the Patent Office. Thus claim 1 should be allowable over

the art of record. Claims 3-8 are directly or indirectly dependent upon the allowable claim 1 and also should be allowable.

Applicants also consider that the amended version of the independent method claim 9 should be also allowable for the reasons discussed hereinabove. Claims 10-14 are dependent upon claim 9, do not contain independently patentable subject matter and also should be allowable.

Furthermore, the above-presented comments with respect to the Konishi and Ikeda are also applicable with respect to the German Patent publication DE43 31 96581 submitted in the Information Disclosure Statement.

Applicants have made the best faith effort to place the application in condition for allowance. However, if any issue raised by the PTO has inadvertently been left unanswered, the Examiner is authorized to call the undersigned at the telephone number indicated below.


Applicants respectfully Petition for one months extension of time to reply.

A separate petition and a check in the amount of \$120.00 accompany this Response.

Respectfully submitted,

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IN THE TITLE:

Please amend the current Title to read:

--System For Detecting and Storing Digital Pictures --.

IN THE DRAWING:

Corrected drawing sheets, in compliance with 37 CFR 1.121(d), accompany this Response. Corrected FIGURE 1 showing the reference numeral "Figure 42" is enclosed. Amendment replacement drawing sheet labeled "Replacement Sheet" in the page header is attached. A copy of the FIGURE 2 is also enclosed.